

Abstract of the Disclosure

An inductively coupled plasma (ICP) generating apparatus includes an evacuated reaction chamber, an antenna installed at an upper portion of the reaction chamber to induce an electric field for ionizing reaction gas supplied into the reaction chamber and generating plasma, and an radio frequency (RF) power source connected to the antenna to apply radio frequency power to the antenna, wherein the antenna has a plurality of coils having different radiuses, at least one of the coils being a serpentine coil bent in a zigzag pattern. Capacitors are connected between the RF power source and a matching network and between the matching network and the antenna, in parallel with the antenna, to induce a LC resonance phenomenon. With the ICP generating apparatus having the above structure, it is possible to reduce antenna inductance, suppress capacitive coupling, and improve plasma uniformity. It is also possible to discharge and sustain plasma efficiently using the LC resonance phenomenon.